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A CROSS SECTIONAL ANALYSIS AND GENERALIZABILITY IMPLICATIONS OF--ETC(U)
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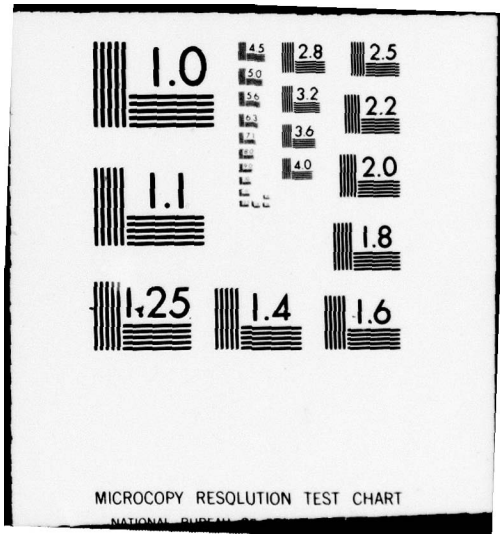
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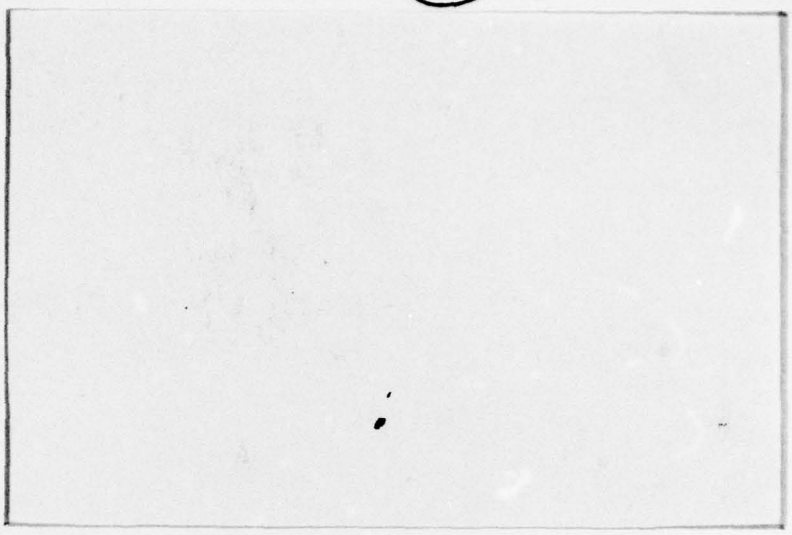

CENTER FOR MANAGEMENT AND ORGANIZATIONAL RESEARCH

RESEARCH DIVISION

COLLEGE OF BUSINESS ADMINISTRATION

UNIVERSITY OF SOUTH CAROLINA
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(6) A CROSS SECTIONAL ANALYSIS AND GENERALIZABILITY IMPLICATIONS OF A MILITARY ATTRITION MODEL.

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The generalizability of results of an earlier study of recruit training attrition (Mobley, Hand, Baker, & Meglino, 1978) are examined across three additional groups of recruits. A significantly different prediction equation for attrition was observed for one group containing lower quality recruits. Results support the general conclusions of the earlier study although many of the variables were not consistently significant across all four samples. Intention to complete enlistment, expectancy of completing enlistment, and internal motivation consistently differentiated graduates from attrites.

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A CROSS SECTIONAL ANALYSIS AND GENERALIZABILITY IMPLICATIONS OF A MILITARY ATTRITION MODEL

MANAGEMENT SUMMARY

Earlier studies in this series have examined the causes and correlates of attrition among a sample of male Marine Corps recruits which entered Parris Island during August 1976. Since this sample, because of time of accession and location, might not have been representative of the typical recruit population, additional recruit samples were surveyed. These additional samples were selected as follows: July, 1977 at Parris Island; July, 1977 at San Diego; and January, 1978 at San Diego (1978 Parris Island males were not included in the present report due to the concurrent but separate realistic job preview experiment initiated in 1978; Horner, Mobley and Meglino, 1979). Samples were chosen to highlight differences due to year of accession, location, and both the time of accession and the quality of the sample. Four separate groups were examined in this study.

How Was The Study Conducted?

Recruits were asked to complete a survey after they arrived at their recruit training location but before the actual start of training (pre-training survey) and again just prior to graduation (post-training survey). Individuals who left the Marine Corps during training were also given a survey (out-placement survey). Demographic information was obtained on individuals through the Marine Corps Recruit Accession Management System (RAMS) file.

How Were the Groups Different?

Significant differences among the four groups were noted for racial composition, marital status, mental scores, age, and years of education. Compared to all other groups, the 1976 Parris Island recruits had significantly higher mental scores, and the 1978 San Diego sample was significantly older with significantly fewer years of education.

There was a significant overall difference in attrition rates across the four groups. Comparison of individual groups revealed no significant difference between 1976 and 1977 Parris Island (12% vs 10%, a temporal comparison), marginal significance ($p < .10$) between 1977 Parris Island and San Diego (10% vs 6%, a location comparison) and a significant difference between 1977 and 1978 San Diego (6% vs 14%, a temporal and quality comparison).

How Did Graduates Differ from Attrites

Recruit training graduates and attrites were compared on the measures they completed prior to the start of training. The pre-training measures which significantly differentiated graduates from attrites for all four groups were: intention to complete enlistment, chances of completing enlistment, and internal motivation. Measures that significantly differentiated graduates from attrites across three groups and were in the appropriate direction for a fourth group were: intention to re-enlist, sum of the positive Marine role outcome expectancies, Marine role attraction, Marine role force, Marine role force minus civilian role force, and expected overall satisfaction.

In order to examine the attrition process in multivariate terms, a regression model was proposed and applied to each of the four cohort groups.

Tests of homogeneity of slope and intercept for all possible ways of pooling cohort groups revealed significant differences between the 1978 San Diego sample and the other three cohort groups. Specifically, demographic and intention variables were significantly related to attrition for the pooled sample, while age, satisfaction, and intention variables were significantly related to attrition among the 1978 San Diego sample.

How Did Attrites Differ in Reasons for Attrition?

Reasons for attrition were examined in two ways: administrative and self reported. With respect to administrative reasons, all four samples discharged a substantial percentage of recruits due to unsuitability - apathy. However, Parris Island tended to have a higher attrition rate due to unsuitability - personality. Since 1976 the attrition rate has increased for erroneous entry and decreased for physical disability and unsuitability - inaptitude.

Among the highest self-reported reasons for attrition for all four groups were: missed family and friends, too much pressure, lack of personal freedom and physical health. Rank order correlations between each sample for 30 possible self-reported reasons were relatively high, ranging from .66 to .80.

What Kinds of Individual Changes Were Noted During Recruit Training?

Changes during recruit training were examined for graduates (pre-training vs post-training survey) and for attrites (pre-training vs out-placement survey). Across all four groups, graduates exhibited a significant increase in leader consideration, job autonomy, feedback from others, group proficiency and growth need. Changes that were significant across three groups and were in the appropriate direction for a fourth group were: increased intention to re-enlist, increased chances of completing enlistment, increased force toward

the Marine role, decreased leader structure, and increased overall satisfaction. The San Diego cohort appeared to have experienced fewer significant changes during recruit training.

No significant changes were noted across all four groups for attrites. Significant changes across three groups with a fourth group in the appropriate direction were: increased expectation of finding an acceptable civilian job, decreased attraction to the Marine role, decreased Marine role force, decreased leader structure, and a decrease in dealing with others.

What Conclusions Can Be Drawn from This Study?

The results of this study support the general conclusions of an earlier study of Marine Corps recruit attrition (Mobley, Hand, Baker and Meglino, 1978) although many of the variables measured were not consistently significant across all four samples. This is perhaps due to reduced number of recruits in subsequent samples. An interesting conclusion of the study is the presence of a significantly different prediction equation for the 1978 San Diego sample. This group was also significantly lower in overall quality as measured by age and level of education.

The observation of certain consistent differences between graduates and attrites prior to recruit training continues to have implications for recruiting, selection, and possible interventions prior to or during recruit training. The observation of a different prediction equation for lower quality recruits suggests the possibility of differential treatment for higher risk recruits.

A CROSS SECTIONAL ANALYSIS AND GENERALIZABILITY IMPLICATIONS OF A MILITARY ATTRITION MODEL

This report presents an analysis of recruit training attrition in the U.S. Marine Corps across various cohorts. The analyses reported represent a portion of a longitudinal study of individual and organizational causes and correlates of attrition among first term enlisted personnel. Earlier reports have dealt with pre-training values, expectations and intentions for a 1976 sample of Parris Island recruits (Mobley, Hand, Logan, & Baker, 1977); an analysis of recruit training attrition for this sample (Mobley, Hand, & Logan, 1977; Mobley, Hand, Baker, & Meglino, 1978); and a cross sectional analysis of this sample at advanced training and initial duty station (Griffeth, Meglino, Youngblood, & Mobley, 1979). The present report analyzes correlates of recruit training attrition across four distinct samples of enlisted personnel. Since support for this study was obtained through developmental funds, this report is primarily directed toward the manpower community. Subsequent manuscripts, currently in process, will address concerns of the basic research community.

Problem

Attrition among first term enlisted military personnel is a problem of justifiable concern. Declining numbers of citizens in the primary recruiting age groups, an improving economy providing alternative employment opportunities, and increasingly technological sophisticated manpower requirements serve to under-score the nature of the Problem. (See e.g., Matthews, 1977; Wharton EFA, 1979). Pre-end of active obligated service (EAOS) attrition places additional burden on the recruiting function which is already dealing with a diminished labor market. Pre-EAOS attrition represents a significant cost to the military

(see e.g., Huck and Midlam, 1977) and a potentially significant cost to individuals who attrite (leave the organization). This does not imply that all attrition is bad. Attrition of certain individuals at certain times may be desirable from cost-effectiveness, unit-effectiveness, and individual perspectives.

Research on military attrition reviewed elsewhere (Hand, Griffeth, and Mobley, 1977) indicated that military attrition research: has placed relatively more emphasis on reenlistment than pre-EAOS attrition; has placed relatively more emphasis on individual variables (e.g., education, mental grade, etc.) than on organizational variables; has infrequently analyzed the possible joint or interactive contribution to attrition of individual and organizational variables; has infrequently utilized longitudinal designs; and has infrequently used experimental designs. Also, it should be noted that the shift to the volunteer concept raises issues of generalizability of pre-1973 research.

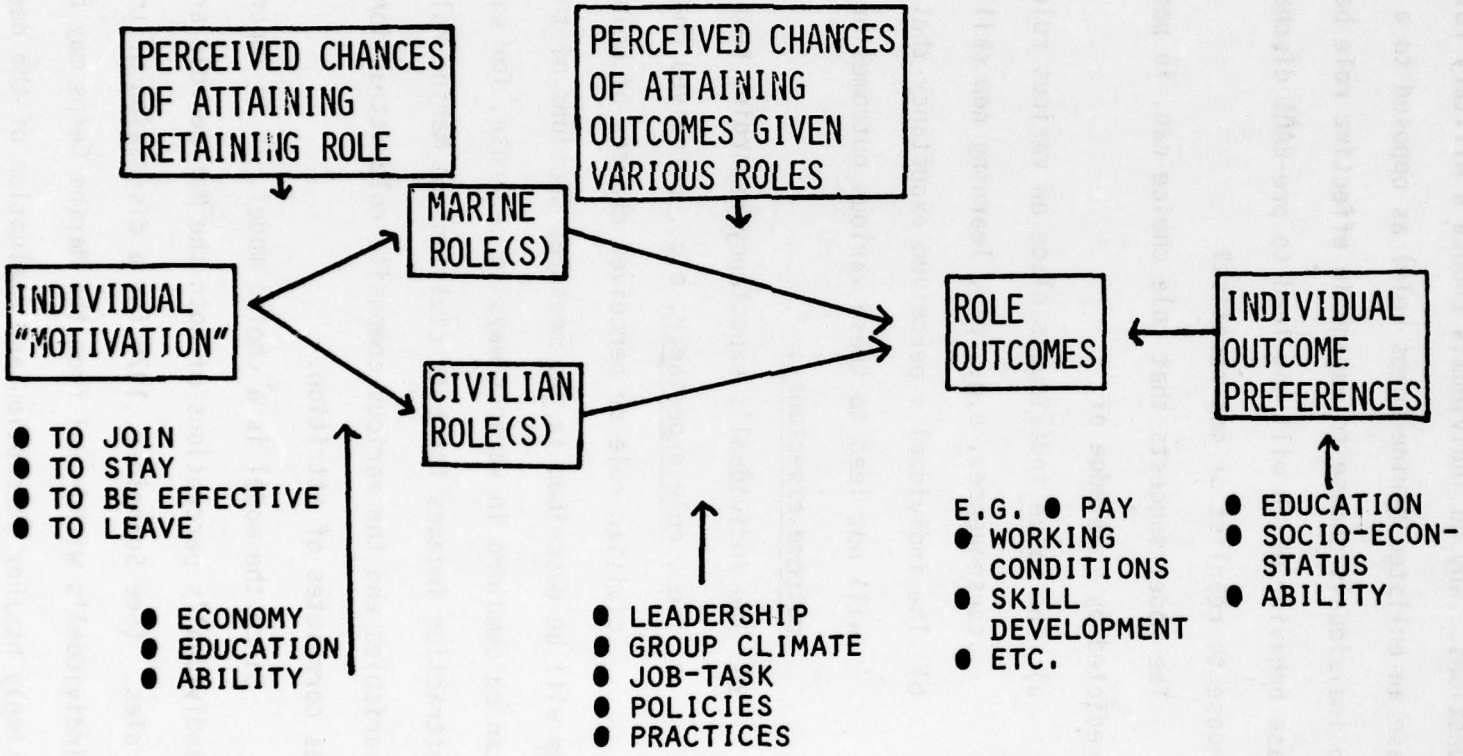
The present research program seeks to assess the contribution of individual and organizational variables to pre-EAOS attrition using multivariate analyses, a longitudinal design, and an enlisted sample selected <u>after</u> the 1973 shift to an all volunteer military.

General Model

The general model serving as a basis for this study is a role choice model (See Figure 1). This model is a variant of the generalized expectancy model of organizational behavior (Vroom, 1964; Campbell, Dunnette, Lawler, and Weick, 1970; Dachler and Mobley, 1973; Lawler, 1973). For reviews of the expectancy model, see Locke (1975) and Mitchell (1974). See Graen (1976) for a discussion of role processes, and Wiskoff (1977) for a multinational review of military career expectation research.

FIGURE 1

A GENERALIZED MODEL OF MARINE ROLE ATTRACTION



The role choice model used here addresses the following kinds of questions. Why do individuals choose a military role (in the present case an enlisted Marine Corps role) as opposed to a civilian role? Why do individuals choose to engage in effective role behavior (in the present case behavior which will not lead to pre-EAOS discharge)? Why do individuals choose to reenlist or not reenlist?

The model suggests that role choice can, in part, be understood and predicted by knowledge of:

a) The value individuals place on various role outcomes or consequences, e.g., pay, learning new skills, travel, etc.;

b) The individual's perceived expectancy that a given role will or will not lead to these various outcomes or consequences; i.e., role-outcome expectancy;

c) The individual's expectancy regarding being able to attain the role, i.e., role expectancy, e.g., perceived chances of finding an acceptable civilian role or perceived chances of being a "successful" Marine.

As will be described in the measures sections of this report, these variables can be combined in various ways to generate, for each individual, role attraction indexes for both civilian and Marine roles. The individual variables and the various composite role attraction indexes can then be evaluated as correlates of attrition.

Since the model is a choice model, it is important to assess the individual's perceptions of both the Marine role and alternative (civilian) roles. (See Schneider, 1976 for a discussion of this important point.) An individual's withdrawal from the Marine Corps may be related to more than simply his/her perception and evaluation of the desirability and availability of alternatives.

Individual level variables such as education, age, mental grade, etc., have been shown to be related to pre-EAOS attrition (Matthews, 1977; Lockman, 1975; Sands, 1976). In the present research program, such individual level variables as age, education, mental grade, and marital status are analyzed in terms of their relation to: values, expectancies, and role attraction; changes in values, expectancies, and role attraction; perceived organizational variables; and to attrition either directly or in combination with other individual and organizational variables.

Based in part on the Mobley, Griffeth, Hand, and Meglino (1979), Hand, et al. (1977), and Porter and Steers (1973) reviews of variables related to withdrawal (attrition) behavior, the study includes measures of leadership, job content, and group climate. These organizational variables, as perceived by the individual, are assessed in terms of their direct relationship to attrition and to the various components of the role choice model.

It is assumed that outcome values, role-outcome expectancies, and role expectancies are learned and are modified by experience. One advantage of the longitudinal design is that it affords the opportunity to track the learning-socialization process.

Summarizing the basic role model:

a) It is a choice model which considers perceptions and evaluations of both Marine roles and alternative civilian roles:

b) It considers both individual and organizational variables;

c) Combined with a longitudinal design, it permits assessment of the learning-socialization process.

It is believed that use of this conceptual model will contribute not only to prediction of attrition from individual and organizational variables, but also to the understanding of the attrition process.

THE PRESENT REPORT

This report examines the generalizability of results previously obtained for a sample of Marine Corps recruits which entered Parris Island during August, 1976. These results, reported in an earlier technical report in this series (Mobley, et al, 1978), found a number of significant pre-recuit training differences between subsequent recruit training graduates and attrites. These differences, also summarized in the present report, were in the areas of intentions, role expectations, role attraction, expected leadership, expected job content, expectations regarding an individual's group and, expected overall satisfaction. Differences in these areas were also found between pre and post-training measures for graduates and between pre and out-placement measures for attrites. A regression analysis was also reported which examined the prediction of recruit training attrition from pre-training survey and demographic information.

Since the previous report examined attrition for a single sampling of recruits (August, 1976 Parris Island accessions), similar analyses for additional samples appeared warranted. The present report examines the results of these analysis for recruits sampled in subsequent years and at an additional location.

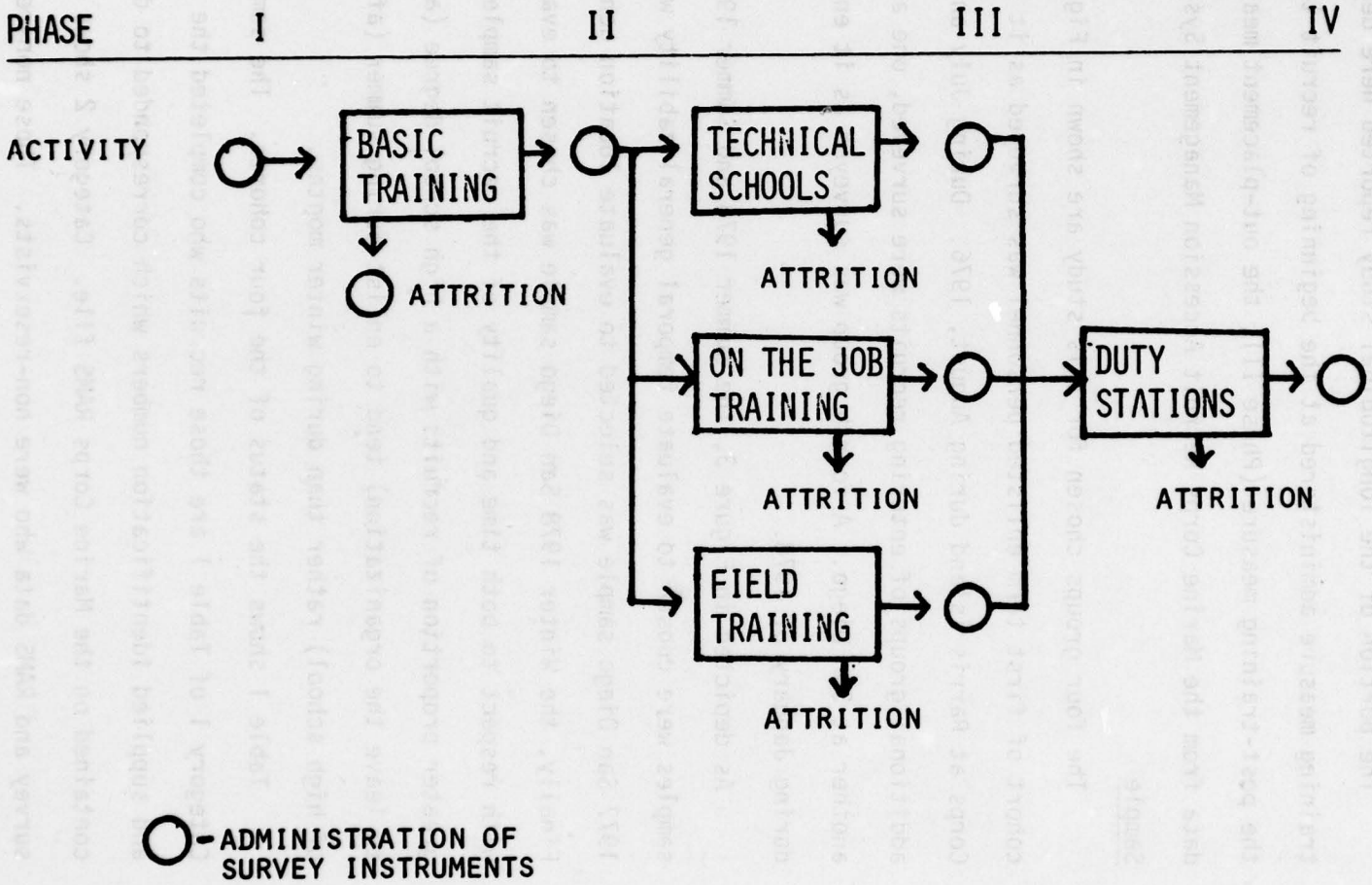
METHOD

Basic Design

The basic longitudinal design is summarized in Figure 2. Survey measures were administered at the beginning of recruit training (pre-training measure), again at the end of recruit training (post-training measure), or at the time of recruit training attrition (out-placement measure). (Additional measures were given near the end of advanced training and/or subsequent duty station for the 1976 cohort. These were analyzed in cross-sectional terms [Griffeth

FIGURE 2

BASIC LONGITUDINAL DESIGN



et al., 1979] and will be analyzed longitudinally in the next technical report in this series).

The portion of the longitudinal study reported here deals with the pre-training measure administered at the beginning of recruit training (Phase I), the post-training measure (Phase II), the out-placement measure, and demographic data from the Marine Corps Recruit Accession Management System (RAMS) file.

Sample

The four groups chosen for this study are shown in Figure 3. The original cohort of first term enlisted personnel was surveyed as it entered the Marine Corps at Parris Island during August, 1976. During July and August of 1977 two additional groups of entering recruits were surveyed, one at Parris Island and another at San Diego. A fourth group was surveyed as it entered San Diego during January of 1978.

As depicted in Figure 3, the Summer 1976 and Summer 1977 Parris Island samples were chosen to evaluate temporal generalizability while the Summer 1977 San Diego sample was selected to evaluate location generalizability. Finally, the Winter 1978 San Diego sample was chosen to evaluate generalizability with respect to both time and quality of the recruit sample. Historically, a greater proportion of recruits with a high school degree (and a lower propensity to leave the organization) tend to enlist during summer (after the completion of high school) rather than during winter months.

Table 1 shows the status of the four cohorts. The sample numbers shown in Category 1 of Table 1 are those recruits who completed the pre-training survey and supplied identification numbers which corresponded to demographic records contained on the Marine Corps RAMS file. Category 2 shows recruits with both survey and RAMS data who were non-reservists. Those non-reservists with both survey and RAMS data who gave consistent survey responses comprise Category 3.

FIGURE 3

SURVEY TIMES AND LOCATIONS

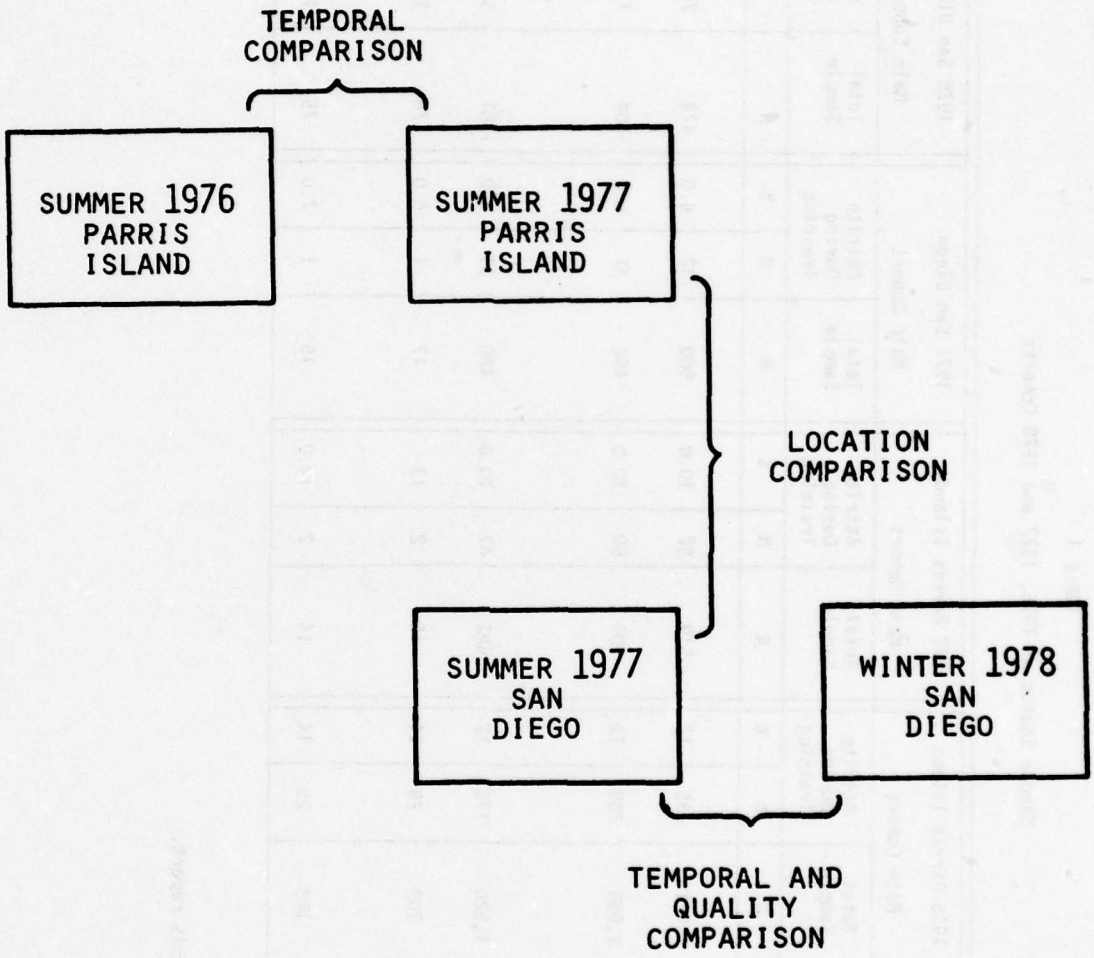


TABLE 1

Sample Status of 1976, 1977 and 1978 Cohorts

Categories	1976 Parris Island Male Cohort			1977 Parris Island Male Cohort			1977 San Diego Male Cohort			1978 San Diego Male Cohort		
	Total Sample	Attrite During Training		Total Sample	Attrite During Training		Total Sample	Attrite During Training		Total Sample	Attrite During Training	
	N	N	%	N	N	%	N	N	%	N	N	%
1. Survey ID numbers matched with RAMS demographic file ID	1,871	236	13	519	52	10.0	509	32	6.0	478	74	15.0
2. Non-Reserves with matched RAMS and survey data.	1,668	208	12	504	50	10.0	492	31	6.0	404	74	18.0
*3. Non-Reserves with matched RAMS and survey data with three or less consistency errors on pre-recruit survey	1,520	176	12	482	47	10.0	480	31	6.0	381	52	14.0
4. Reserves with matched RAMS and survey data	203	28	14	15	2	13	17	1	6.0	78	16	21.0
5. Reserves with matched RAMS and survey data, with three or less consistency errors on pre-recruit survey.	183	25	14	14	2	14.0	15	1	7.0	75	15	20.0

Source: YM-1

*Category used for data analyses in this report.

The identification of consistent respondents was accomplished by recording the similarity of responses on closely worded pairs of questions on the survey. The sample shown in Category 3 formed the basis for all analyses described in this report.

Categories 4 and 5 show the status of reservists who completed the pre-training survey. Specifically, Category 4 shows the number of reservists with both survey and RAMS data while Category 5 shows the number of these reservists who gave consistent survey responses. Reservists were eliminated from the analyses in this report due to their relatively small numbers and the possibility that they, as a group, may be charactistically different from the non-reservists population with regard to the determinants of attrition.

MEASURES

The measures used in this study are summarized in Figure 4. The individual level variables of age, mental score, education, race, marital status, and number of dependents were collected from the RAMS computer file.

The component measures of the role choice model were collected via survey. These components include the following:

a) Enlisted personnel were presented a list of 50 role outcomes and asked to rate them on a +2 to -2 scale of desirability - undesirability. The role outcomes, generated from previous research, interviews, and pilot tests, included such things as "learning career skills," "separation from family," "responsibility," etc. The term "outcome" refers to rewards, costs, and conditions possibly associated with a job or role.

b) Role-outcome expectancies: Marine: for each of the 50 role outcomes, enlisted personnel were asked to rate, on a scale of 0 to 1.0, their chances of attaining that outcome by being a Marine.

c) Role-outcome expectancies: Civilian: for each of the 50 role outcomes, enlisted personnel were asked to rate, on a scale of 0 to 1.0, their chances of attaining that outcome by being in a civilian job.

Figure 4

MEASURES

INDIVIDUAL

- AGE
- MENTAL GRADE
- EDUCATION
- RACE
- DEPENDENTS
- ROLE ATTRACTION-MARINE
- ROLE ATTRACTION-CIVILIAN

ORGANIZATIONAL

- LEADERSHIP (LBDQ)
  - CONSIDERATION
  - STRUCTURE
- GROUP (GDDQ)
  - HOMOGENEITY
  - PERMEABILITY
  - STABILITY
  - HEDONIC TONE
  - PLUS 9 OTHER DIMENSIONS
- JOB (JDS)
  - SKILL VARIETY
  - TASK SIGNIFICANCE
  - FEEDBACK
  - PLUS 7 OTHER DIMENSIONS

CRITERIA

- INTENTIONS
  - EAOS
  - RE-ENLISTMENT
- PRE-EAOS ATTRITION
  - ADMINISTRATIVE REASONS
  - SELF-REPORT REASONS
- PERFORMANCE
  - SELF-REPORT
  - MASTER FILE
  - INDIVIDUAL RECRUIT TRAINING PERFORMANCE

d) Role-expectancy: Marine: enlisted personnel were asked to rate their chances of successfully completing their first term enlistment on a scale of 0 to 1.0.

e) Role-expectancy: Civilian: enlisted personnel were asked to rate their chances of finding an acceptable civilian job at the present time if that were their goal, on a scale of 0 to 1.0.

Based on these component ratings, several composite index variables were generated for each individual.

f) Role attraction: Marine: is the sum of the cross-products of the desirability ratings of the 50 role outcomes and Marine role-outcome expectancy ratings.

g) Role attraction: Civilian: is the sum of the cross-products of the desirability ratings of the 50 role outcome and civilian role-outcome expectancy ratings.

h) Role Force: Marine: is the Marine role attraction index above weighted by expectancy of successfully completing the first term enlistment.

i) Role Force: Civilian: is the civilian role attraction index above, weighted by expectancy of finding an acceptable civilian job.

The organizational level variables, as perceived by enlisted personnel, were assessed with standardized survey measures. The Leader Behavior Description Questionnaire (Stogdill and Coons, 1957) assesses perceived leader "Consideration" and "Initiating Structure." Two group sociometric measures, attraction and proficiency (Libo, 1953), also were included. The short version of Job Diagnostic Survey (JDS) (Hackman and Oldham, 1974, 1975) was also used. The JDS assesses various dimensions of the perceived job content, e.g., skill variety, task significance, feedback, task identity, task autonomy from the job. This measure also includes job satisfaction scales and individual level measures of internal motivation and growth need or the desire to obtain growth satisfaction from one's work. A complete list and definitions of the dimensions of the organizational measures is given in the Appendix of an earlier report (Mobley, et al., 1977).

In the pre-recruit training administration of the survey, respondents were instructed to respond to the leadership, group, and job content measures in terms of what they expected (since they had not yet been exposed to military life). Administration of subsequent surveys called for a descriptive rather than expected response set.

Criteria data collected on all surveys included behavioral intentions to complete first term enlistment, behavioral intentions to reenlist, and performance goals. For attrites, self reported ratings of their reasons for attrition were included. Criteria data collected from the Marine Corps Headquarters master file included administrative reasons for attrition and re-cycle information.

Procedure

The survey measures were pilot tested twice: first using enlisted personnel assigned to the University of South Carolina NROTC unit and second, using a platoon of July, 1976 Parris Island recruits. Based on the pilot tests, instructions were clarified, ambiguous items were clarified or deleted, minimal variance items were deleted, and several new questions were added based on suggestions of pilot study subjects.

The pre-training measures were administered as a part of administrative processing during the first few days after arrival at the recruit depot. The survey was administered by the University researchers to groups of four platoons at a time. Recruits were read the appropriate freedom of information passage (which was also included in the survey booklet); informed that participation was voluntary; and that individual responses were confidential. Survey responses were made on machine readable answer sheets. ID numbers were requested for the purpose of matching subsequent administrations of the survey and matching with the RAMS and master file. All officers, non-commissioned officers, and drill instructors remained out of the room during administration

of the survey.

The post-training measure was administered during the week of graduation and in the same manner as the pre-training measure. Re-cycled recruits who did not graduate with their original platoon were given the post-training measure on an individual basis during the week of their graduation if they graduated within four weeks after their original platoon. Attrites were given the out-placement survey while in the Casual Company in the few days before their separation. The same survey was used for pre-training, post-training, and out-placement, with the exception that the out-placement survey included additional questions on self-reported reasons for attrition.

Results

An earlier report (Mobley, et al., 1978) addressed significant differences between graduates and attitudes both prior to training, and at the time of either graduation or attrition. The present report focuses upon the generalizability of such results across four separate samples.

Differences Across Samples

As Table 1 shows, attrition rates for Category 3 individuals varied from 6 percent (1977, San Diego) to 14 percent (1978, San Diego). A one-way analysis revealed a significant difference in attrition rates across all four groups ($\chi^2[3] = 14.2$, $p < .01$). In terms of individual comparisons, the difference in attrition rates between the 1976 and 1977 Parris Island samples (temporal comparison) was not significant at conventional levels. The comparison of attrition between the 1977 Parris Island and San Diego samples (location comparison) showed a marginally significant difference ($z[1] = 1.87$, $p < .10$). A significant difference in attrition rates ($z[1] = 3.55$, $p < .001$) was noted between the 1977 and 1978 San Diego samples (temporal and quality comparison). The

sample of recruits that entered the Marine Corps at San Diego during the Winter of 1978 had a significantly higher rate of attrition than the sample that entered San Diego during the Summer of 1977.

In addition to rates of attrition, the four samples exhibited significantly different demographic characteristics. Specifically, one-way analyses across all four groups showed significant differences for: years of education ($F[3] = 33.63$, $p < .001$), percentage of recruits with a high school degree ($\chi^2[3] = 151.65$, $p < .001$) race-percent caucasian ($\chi^2[3] = 9.78$, $p < .05$), marital status-percent married ($\chi^2[3] = 10.96$, $p < .05$), mental scores ($F[3] = 19.62$, $p < .001$) and age ($F[3] = 6.21$, $p < .001$). Post-hoc Newman - Keuls analysis ($p = .05$) revealed that the 1976 Parris Island recruits had significantly higher mental scores than recruits in the remaining three cohorts and that the average 1978 San Diego recruit was significantly older and significantly less educated than recruites in the other cohorts.

Pre-Recruit Training Differences Between Subsequent Graduates and Attrites

Table 2 shows comparisons between subsequent recruit training graduates and attrites on demographic variables and on survey measures taken prior to the start of recruit training.

Demographic Variables. For the 1976 Parris Island sample, graduates had a significantly greater number of years of education, significantly higher mental scores and were less likely to be married than attrites. These differences, however, are not consistent across all four samples. Significant findings were only evident across two of the four groups for any particular demographic variable. Specifically, mental scores were significantly higher for graduates only in the two Parris Island samples. Graduates had a significantly higher education level only for the 1976 Parris Island and 1978 San Diego cohorts, and graduates were significantly younger only for the Parris Island

Table 2

Breakdown of Pre-Recruit Training Variable Means by Graduates and Attrites

	1976 Parris Island Male Non-Reserve Recruits			1977 Parris Island Male Non-Reserve Recruits			1977 San Diego Male Non-Reserve Recruits			1978 San Diego Male Non-Reserve Recruits		
	Graduates	Attrites	t[b]	Graduates	Attrites	t	Graduates	Attrites	t	Graduates	Attrites	t
Demographic												
Education (years)	11.74	11.36	4.90***	11.90	11.94	- .35	11.83	11.71	.68	11.47	11.00	3.38***
Race (% Caucasian)[c]	79	78	.00	76	72	.18	72	65	.54	79	75	.23
Marital Status (% Married)[c]	3.7	7.4	4.43**	1.2	4.4	1.16	3.4	6.7	.19	5.5	5.8	.00
Mental (AFQT)	61.81	58.59	2.12**	56.57	47.72	3.19***	56.56	54.94	.50	56.76	55.31	.74
Age (years)	18.92	19.12	-1.35	18.67	19.32	-3.88***	18.81	19.45	-1.81*	19.18	19.00	.52
N	1344	176		435	47		449	31		329	52	
Intentions												
Intention to Complete	4.44	3.86	5.67***	4.38	3.91	2.92***	4.43	3.68	2.73***	4.37	3.40	4.64***
Intention to Re-enlist	3.07	2.75	3.31***	3.09	2.72	2.33**	2.96	2.61	1.40	2.88	2.39	2.55**
Expectations												
Chances of completing first term	.87	.71	6.69***	.85	.71	3.18***	.85	.76	1.82*	.85	.67	3.67***
Chances of finding acceptable civilain job	.52	.63	-4.08***	.50	.55	-1.01	.57	.59	- .32	.55	.59	- .70
Sum positive Marine Role outcome expectancies minus negative expectancies	29.95	25.69	4.88***	29.09	24.23	2.62**	29.11	28.31	.49	29.03	26.33	1.68*
Sum positive Civilian Role outcomes expectancies minus negative expectancies	22.74	22.47	.29	22.12	20.79	.74	23.16	25.18	-1.17	23.42	24.93	-1.10
Role Attraction												
Attraction: Marine Role	39.30	31.37	4.61***	36.27	27.57	2.68***	37.35	36.21	.33	37.51	31.50	1.83*
Attraction: Civilian Role	29.59	27.87	1.05	27.61	24.00	1.19	29.93	31.63	- .53	30.24	31.16	- .31
Force: Marine Role	34.97	24.32	6.00**	32.32	22.42	3.59***	33.34	29.96	.94	33.28	23.68	3.36***
Force: Civilian Role	16.21	17.74	-1.02	14.81	13.90	.39	18.51	20.16	- .50	18.39	18.54	- .06
Force: Marine-Civilian Role	18.92	6.97	6.73***	17.68	8.72	2.90***	14.76	9.04	1.52	14.94	5.61	2.90***
Leadership												
Expected leader consideration	43.95	42.25	1.88*	42.14	40.08	1.28	41.60	39.48	1.14	42.50	40.02	1.54
Expected leader structure	64.63	62.90	2.90***	63.95	62.57	1.04	63.81	63.18	.40	64.29	62.00	1.92*
Job Content												
Expected skill variety	3.32	3.14	2.68***	3.29	3.15	1.12	3.17	3.32	- .98	3.27	3.33	- .47
Expected task identify	3.25	3.14	1.66*	3.26	3.29	- .21	3.11	2.98	.87	3.17	3.11	.51
Expected task significance	3.77	3.51	3.63***	2.70	3.49	1.54	3.68	3.30	2.38**	3.61	3.52	.75
Expected autonomy	2.58	2.45	1.79*	2.60	2.63	- .21	2.60	2.43	1.00	2.60	2.46	1.00
Expected feedback from job	3.44	3.22	3.49***	3.39	3.11	2.31**	3.36	3.22	1.10	3.29	3.12	1.44
Expected feedback from others	3.10	2.97	1.77*	3.04	2.91	.90	3.12	3.06	.37	3.01	3.09	- .57
Expected dealing with others	3.98	3.85	2.17**	3.89	2.83	.54	3.87	3.58	2.15**	3.90	3.74	1.38
Group												
Expected attraction	10.51	9.94	3.61***	10.48	10.47	.04	10.59	9.97	1.73*	10.28	10.18	.27
Expected proficiency	6.82	6.55	2.21**	6.81	6.59	1.00	7.04	6.60	.54	6.57	6.33	.85
Satisfaction, Individual Difference												
Expected overall satisfaction	3.45	3.04	6.00***	3.35	3.19	1.11	3.40	3.09	2.10**	3.40	2.67	5.15***
Internal motivation	3.94	3.67	4.21***	3.81	3.55	2.43**	3.87	3.44	2.55**	3.83	3.45	3.54***
Growth need strength	3.86	3.61	3.59***	3.79	3.36	3.44***	3.81	3.62	1.31	3.76	3.61	1.19

*$p \leq .10$

**$p \leq .05$

***$p \leq .01$

[a] The sample sizes varied somewhat across variables due to missing values.

[b] All t-tests are two tailed and when applicable use separate variance estimates for the computation of the t statistic.

[c] Chi-Square test statistic was used for Race and Marital Status.

SOURCE: YM-2

and San Diego samples surveyed in 1977.

In terms of directional consistency, graduates in all four cohort groups had higher mental scores, were more likely to be caucasian and less likely to be married than attrites. In three out of four cohorts, graduates were younger and had more years of education than attrites.

Two examples of directional inconsistency are evident from the demographic data in Table 2. Compared with graduates, 1978 San Diego attrites were slightly younger and 1977 Parris Island attrites had slightly greater years of education. One should note, however, that these inconsistencies occurred within the cohort exhibiting the highest value on the variable in question. That is, compared to the other cohorts, the 1978 San Diego cohort was significantly older and the 1977 Parris Island cohort had the highest number of years of education. This educational difference was also evident when measured by the percentage of recruits in each cohort with a high school degree (these percentages were: 1976 Parris Island, 77.0%; 1977 Parris Island, 91.9%; 1977 San Diego, 83.8%; and 1978 San Diego, 58.3%).

As the above indicates, some demographic variables may predict attrition only within a range of values. That is, when specific levels or values are exceeded, as was the case for age and education described above, certain variables may lose their ability to accurately predict attrition.

Survey Measures. A number of pre-training survey measures distinguished graduates from attrites in the 1976 Parris Island sample. As shown in Table 2, three of these measures (intention to complete enlistment, chances of completing enlistment, and internal motivation) showed a significant difference between graduates and attrites for all four cohorts. Prior to training, graduates in all groups had greater intentions of completing their enlistment, saw greater chances of completing their enlistment, and exhibited higher

internal motivation than attrites.

A number of additional pre-training measures were consistently significant across three of the groups and were in the appropriate direction for a fourth group. These measures were: intention to re-enlist, sum of the positive Marine role outcome expectancies minus negative expectancies, Marine role attraction, Marine role force, Marine role force minus civilian role force, and expected overall satisfaction.

Based on the results summarized in Table 2, the pre-training measures which significantly distinguished graduates from attrites were in the categories of intentions, expectations, role attraction, satisfaction, and individual differences. Significance was somewhat less evident in demographic characteristics and in leadership, job content, and group measures. With a few exceptions, most variables were consistent in terms of direction across all four cohort groups.

Multivariate Prediction of Attrition. Since many of the measures in Table 2 were substantially intercorrelated, a multivariate analysis was necessary to adequately explain the attrition process. For this reason a model of recruit training attrition was proposed containing four sets of factors. Set I included demographic and individual difference variables. Set II was composed of organizational level factors; specifically, job content, leadership, and work group variables. Expected satisfaction and net role force (Marine role force minus civilian role force) were contained in Set III, and intention to complete enlistment comprised Set IV (the variables contained in each set are listed in Table 3). Each set was structured to include variables that were similar in terms of their causal priority to the actual attrition decision. That is, demographic and individual difference variables reflect factors in individual development and are therefore causally prior to

Table 1

Multiple Regression of Recruit Training Attrition[a] on Pre-Recruit Training Survey and Demographic Variables for Two Distinct Cohort Groups

Independent Variable	$\bar{X}$[b] 1[c]	$\bar{X}$[b] 2[d]	B[e] 1	B[e] 2	Beta[f] 1	Beta[f] 2	Step F[g] 1	Step F[g] 2
SET I:								
Demographic/Personal:								
Age (years)	18.81 (1.27)	19.11 (1.68)	-.01* (.01)	-.02 (.01)	-.060	-.123		
Education (years)	11.80 (.70)	11.47 (.94)	.04** (.01)	.08** (.02)	.105	.225		
Growth Need Strength	3.86 (.80)	3.77 (.77)	.02 (.01)	-.02 (.03)	.053	-.049		
Internal Motivation	3.94 (.69)	3.82 (.74)	.04** (.01)	.06 (.03)	.085	.132		
Marital Status[h]	.038 (.19)	.056 (.23)	-.09* (.04)	.03 (.08)	-.063	.020		
Mental Score (AFQT)	61.38 (18.65)	58.22 (15.63)	.0001 (.0004)	-.002 (.001)	.009	-.077		
Race[i]	.805 (.40)	.822 (.38)	.01 (.02)	.04 (.05)	.013	.050	11.00**	5.03**
SET II:								
Job Content:								
Skill Variety	3.29 (.83)	3.32 (.83)	-.01 (.01)	-.03 (.03)	-.018	-.065		
Task Identity	3.24 (.80)	3.15 (.84)	-.02 (.01)	-.02 (.03)	-.045	-.061		
Task Significance	3.77 (.83)	3.68 (.87)	.01 (.01)	-.04 (.03)	.029	-.092		
Autonomy	2.55 (.92)	2.53 (.94)	.01 (.01)	.01 (.02)	.034	.024		
Feedback from Job	3.44 (.76)	3.32 (.76)	-.0001 (.01)	.0003 (.03)	.000	.001		
Feedback from Others	3.11 (.94)	3.04 (.92)	.001 (.01)	-.03 (.02)	.006	-.087		
Dealing with Others	3.99 (.71)	3.93 (.71)	.003 (.01)	-.002 (.03)	.009	-.004		
Leadership:								
Consideration	42.93 (10.21)	41.46 (9.68)	-.0002 (.001)	-.0004 (.002)	-.006	-.011		
Structure	64.77 (6.89)	64.50 (7.16)	-.002 (.001)	.002 (.003)	-.049	.047		
Work Group:								
Attraction	10.55 (1.84)	10.30 (2.09)	.004 (.005)	-.02 (.01)	.026	-.105		
Proficiency	6.86 (1.40)	6.57 (1.60)	.001 (.006)	.01 (.01)	.005	.049	1.05	1.61
SET III:								
Expected Satisfaction	3.86 (.80)	3.27 (.87)	.007 (.01)	.12** (.03)	.019	.320		
Net Role Force	17.66 (20.44)	13.02 (21.65)	.0005 (.0004)	.00002 (.001)	.036	.001	3.61**	14.17**
SET IV:								
Intention to Complete	4.45 (.92)	4.28 (1.12)	.03** (.28)	.06** (.02)	.090	.204	10.87**	9.19**
Intercept			.36	.13				
Summary Statistics:								
Overall F	5.08**	4.32**						
N	1588	269						
R^2	.06	.27						
Adjusted R^2	.05	.21						
Standard Error of Estimate	.28	.30						

*p ≤ .05
**p ≤ .01

[a] Dependent variable was coded 1 if recruit completed basic training, 0 if not. Attrition was 9 and 13 percent for groups 1 and 2, respectively.

[b] Mean of the independent variable. Standard deviation appears below figure in parentheses.

[c] Group 1 consists of 1976 Parris Island and 1977 Parris Island and San Diego male nonreserve recruits.

[d] Group 2 consists of 1978 San Diego male nonreserve recruits.

[e] Raw regression coefficient.

[f] Standardized regression coefficient.

[g] Stepwise F is reported for each of the four sets of independent variables. Set I was entered into the equation first, Set II second, and so forth.

[h] 1 = married, 0 = not married.

[i] 1 = Caucasian, 0 = non-Caucasian.

perceived organizational variables in terms of the decision to withdraw from an organization. Organizational variables and satisfaction and role force variables tend to represent factors that are progressively more immediate in terms of the actual attrition decision. Following from these factors, and most immediate in terms of the attrition decision, are actual intentions regarding attrition (Mobley, 1977; Mobley, Griffeth, Hand, & Meglino, 1979; Porter & Steers, 1973).

The sets of variables described above were sequentially entered into a regression equation with the dependent variable being actual attrition during recruit training (1 = completed recruit training, 0 = attrite during recruit training). Set I (demographic and individual difference variables) was entered first followed by Sets II, III, and IV, respectively. The rationale for this ordering was to allow any set of variables the opportunity to explain only the variance which remained after the effect of causally prior variables had been removed. Therefore, since intention is conceptualized as the most immediate precursor of attrition, its unique contribution to the attrition decision was assessed only after the effects of causally prior variables had been accounted for.

The model specified above was separately applied to each of the four cohort groups in the study. In order to determine whether the attrition process operated in the same way for all groups, an overall test of homogeneity of slopes and intercepts was conducted (Johnston, 1972). Results indicated a significant difference among the groups ($F[66, 1769] = 1.41$, $p < .05$). Further analysis revealed that this effect was due to heterogeneity of slope coefficients ($F[63, 1769] = 1.47$, $p < .05$).

As a result of this analysis, tests of homogeneity of slopes and inter-

cepts were conducted for the 10 remaining possible ways to combine the four cohort groups. In all cases, significant differences due to slope were observed only when the 1978 San Diego cohort was included in the analysis. In essence, the 1978 San Diego cohort was singularly responsible for the heterogeneity observed in the prediction equations for the four cohort groups. For this reason a single regression equation was estimated for the pooled 1976 Parris Island, 1977 Parris Island and 1977 San Diego cohorts. A second regression equation was estimated for the 1978 San Diego cohort. Both equations are reported in Table 3.

As Table 3 shows, with the exception of variable Set II, the contribution of each set of variables was significant in the prediction equations. Overall, the model was significant ($p < .01$) in predicting attrition for both groups. Variance explained (adjusted R^2) was 5 percent for the pooled cohorts and 21 percent for the 1978 San Diego cohort.

With respect to individual variables, five were significant for the pooled cohorts: age, education, internal motivation, marital status and intention to complete enlistment. Education, expected satisfaction, and intention to complete enlistment were significant for the 1978 San Diego cohort. Two significant predictors, education and intention to complete enlistment, were common to both equations; however, the magnitude of the standardized regression coefficients for these two variables was more than double for the 1978 San Diego cohort than the pooled 1976 and 1977 cohorts.

Of the variables making a significant contribution to a particular equation, three were unique to the pooled cohorts. For this group, graduates were younger, had higher internal motivation and were more likely to be married than attrites. For the 1978 San Diego cohort, expected satisfaction was unique to the prediction of attrition. For this group, graduates initially expected greater satisfaction in the Marine Corps than did attrites.

Reasons for Attrition

Reasons for attrition were examined for recruits in each of the four cohort groups who left the Marine Corps during recruit training. This was done in two ways. Administratively recorded reasons were obtained through codes available from the RAMS file. In addition, recruits who became attrites were asked to describe their reasons for leaving by rating (on a five point scale from strongly disagree to strongly agree) each item from a list of 30 possible reasons for attrition.

Administrative reasons for attrition. Table 4 lists administratively recorded reasons for attrition for each of the cohort groups. As is evident from these data, all four groups discharged a substantial number of recruits due to unsuitability-apathy. The Parris Island groups also showed substantial percentages of recruits discharged due to unsuitability-personality. The 1977 and 1978 cohorts show greater percentages of recruits discharged due to erroneous entry, and decreased percentages discharged for reasons of physical disability and unsuitability - inaptitude.

Self-reported reasons for attrition. As shown in Table 5, the four most highly rated reasons for attrition across the four groups were: "there was too much pressure on me," "I missed family/friends back home," "lack of personal freedom as a Marine," and "physical health reasons." It is interesting to note that while "physical health reasons" was the highest rated reason for attrition for both of the San Diego cohorts, it was less prominent among recruits at Parris Island.

In order to examine the consistency of self-reported reasons across the four cohort groups, rank order correlations for the 30 reasons were computed for each of the six possible pairs of cohorts. Correlation coefficients ranged from .66 (1977 Parris Island with 1977 San Diego) to .80 (1976 Parris

TABLE 4

Administratively Recorded Reasons for Recruit Training Attrition

Reason	1976 Parris Island Male Cohort Non-Reserve		1977 Parris Island Male Cohort Non-Reserve		1977 San Diego Male Cohort Non-Reserve		1978 San Diego Male Cohort Non-Reserve	
	N	%	N	%	N	%	N	%
Unsuitability, Apathy, Defective Attitude, Inability to Expend Effort Constructively	52	29	19	40	16	52	18	35
Erroneous Entry	8	4	12	26	9	29	18	35
Unsuitability - Personality Disorder	65	37	15	32			2	4
Physical Disability	24	14						
Unsuitability - Inaptitude	17	10					1	1
Misconduct - Fraudulent Entry	5	3	1	2	4	13	2	4
Other	5[a]	3			2[b]	6	11[c]	21
Total N	176	100	47	100	31	100	52	100

[a]Includes: hardship, lack of jurisdiction, misconduct-conviction by civil authorities.

[b]Includes: personal drug abuse and minority.

[c]Includes: Marine Corp. Recruit Failure Program.

SOURCE: Printout YM-4

Table 5

Self-Reported Reasons For Recruit Training Attrition

I am leaving the Marine Corps because of:[a]	1976 Parris Island Male Non-Reserve Cohort		1977 Parris Island Male Non-Reserve Cohort		1977 San Diego Male Non-Reserve Cohort		1978 San Diego Male Non-Reserve Cohort	
	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean
Physical health reasons.	10	2.90	4.5	3.10	1	3.33	1	3.48
Mental health reasons.	13	2.75	4.5	3.10	9	2.56	15	2.24
The poorly trained leaders I had.	17	2.69	25	2.29	22	2.11	24	2.10
The inability to make friends with other Marines.	22	2.57	9.5	2.86	30	1.78	19	2.19
Family problems back home.	14.5	2.73	6.5	3.05	22	2.11	9	2.33
The lack of personal freedom as a Marine.	2	3.38	2	3.43	6.5	2.89	3	2.76
Other enlistees picked on me.	24	2.54	21	2.43	19	2.17	26.5	2.00
I had trouble learning.	25	2.52	19	2.52	16.5	2.22	19	2.19
Inability to complete a training school.	18	2.62	17	2.57	15	2.28	24	2.10
A good job opportunity as a civilian.	12	2.76	11	2.76	11.5	2.44	12	2.29
Inability to get promoted.	16	2.72	14.5	2.67	19	2.17	12	2.29
Being a Marine is too physically demanding.	7	3.01	13	2.71	2	3.22	12	2.29
The assignments were too boring.	11	2.84	14.5	2.67	11.5	2.44	15	2.24
Superiors treated me unfairly.	6	3.05	6.5	3.05	8	2.78	6.5	2.38
There was too much pressure on me.	3	3.24	1	3.95	5	2.94	2	2.79
I missed my family/friends back home.	1	3.42	3	3.20	4	2.94	4	2.50
Getting in trouble was the only way I could get out of the Marines.	23	2.55	23	2.30	16.5	2.22	21	2.15
The rules and regulations were too rigid.	4	3.16	8	2.95	10	2.50	8	2.35
There wasn't enough discipline.	30	2.28	22	2.35	22	2.11	10	2.30
I want to get married.	8	2.99	12	2.75	13	2.39	19	2.19
I just couldn't stay out of trouble.	21	2.59	25	2.29	14	2.33	5	2.40
A change in my religious values.	19.5	2.61	16	2.52	26.5	2.00	22	2.14
Minorities are discriminated against.	14.5	2.73	19	2.52	24.5	2.06	28	1.95
I didn't get the location I wanted.	26	2.48	27.5	2.24	24.5	2.06	29	1.91
I didn't get the training I wanted.	19.5	2.61	27.5	2.24	29	1.89	17	2.20
I got hung up on drugs.	29	2.33	30	1.62	28	1.94	26.5	2.00
I couldn't get along with members of other races.	27	2.44	29	2.05	19	2.17	24	2.10
There were too many "Mickey Mouse" rules and regulations.	9	2.96	9.5	2.86	3	3.00	15	2.24
I was treated like a little child.	5	3.11	19	2.52	6.5	2.89	6.5	2.38
I couldn't get in the unit I wanted.	28	2.42	25	2.29	26.5	2.00	30	1.86
Max N	105		21		18		21	

Note: Spearman rank order correlations were computed for each of the three possible pairs of cohorts for the set of ranks. The correlations are: 1976 Parris Island with 1977 Parris Island, r = .80; 1976 Parris Island with 1977 San Diego, r = .78; 1976 Parris Island with 1978 San Diego, r = .69; 1977 Parris Island with 1977 San Diego, r = .66; 1977 Parris Island with 1978 San Diego, r = .69; 1977 San Diego with 1978 San Diego, r = .71.

[a]Scale = 1, Strongly Disagree to 5, Strongly Agree

Source: YM-5

Island with 1977 Parris Island). On the whole, self-reported reasons appeared to exhibit some consistency across the four groups.

As noted in a previous report, self-reported reasons for attrition were rated at the time individuals were being out processed from the Marine Corps. Despite assurances of anonymity and the use of consistency checks, such ratings might easily be distorted.

Pre and Post-training Differences for Graduates

Analyses reported in Tables 2 and 3 have dealt with differences between graduates and attrites on measures taken prior to the start of training. In addition to these pre-training measures, recruits were also surveyed prior to graduation from recruit training. A comparison of these pre and post-training measures for each of the four cohort groups is shown in Table 6.

For the 1976 cohort all but four measures exhibited a significant change over the course of recruit training. While significant changes were noted for subsequent cohorts, these changes were not as pronounced for the other cohorts particularly for the 1978 San Diego cohort.

Measures that reflected consistently significant increases across all groups were: leader consideration, job autonomy, feedback from others, group proficiency, and growth need. Changes that were significant across three groups and were in the appropriate direction for a fourth group were: increased intention to reenlist, increased chances of completing enlistment, increased force toward the Marine role, decreased leader structure, and increased overall satisfaction.

On average, graduates appeared to be more confident, more attracted to the Marine role, and more committed to the Marine role at the time of graduation. Compared to their initial expectations, graduates saw their leaders as more considerate and less structured, saw their job as higher on certain job dimensions, and experienced greater overall satisfaction. It should be noted

Table 6

Comparison of Pre and Post Recruit Training Measures for Nonreserve Recruit Training Graduates

Variable	1976 Parris Island Male Non-Reserve Cohort			1977 Parris Island Male Non-Reserve Cohort			1977 San Diego Male Non-Reserve Cohort			1978 San Diego Male Non-Reserve Cohort		
	Pre-Recruit Mean	Post-Recruit Mean	t	Pre-Recruit Mean	Post-Recruit Mean	t	Pre-Recruit Mean	Post-Recruit Mean	t	Pre-Recruit Mean	Post-Recruit Mean	t
Intentions												
Intention to complete enlistment	4.46 (.91)	4.56 (.84)	-3.13**	4.42 (.96)	4.47 (.94)	-.78	4.49 (.94)	4.57 (.86)	-1.51	4.42 (.98)	4.37 (1.02)	.65
Intention to re-enlist	3.08 (1.00)	3.21 (.93)	-4.42**	3.10 (1.00)	3.20 (1.04)	-1.81	2.99 (.95)	3.17 (1.00)	-3.42**	2.89 (1.02)	3.16 (1.05)	-3.78**
Expectations												
Chances of completing enlistment	.88 (.20)	.93 (.62)	-7.39**	.86 (.21)	.89 (.21)	-2.08*	.87 (.21)	.91 (.18)	-3.85**	.86 (.23)	.86 (.23)	-.06
Chances of finding acceptable civilian job	.52 (.33)	.56 (.33)	-4.38**	.49 (.31)	.59 (.31)	-6.43**	.57 (.32)	.60 (.33)	1.66	.55 (.35)	.58 (.33)	-1.27
Sum positive minus negative Marine role outcome expectancies	29.97 (7.50)	31.93 (7.71)	-8.04**	29.37 (7.58)	30.85 (8.70)	-3.23**	29.31 (8.53)	31.64 (8.19)	-4.63**	29.25 (8.01)	28.95 (10.06)	.51
Sum positive minus negative civilian role outcome expectancies	22.64 (8.78)	23.94 (9.42)	-4.49**	22.34 (8.70)	22.88 (9.56)	-1.09	23.37 (9.16)	24.13 (9.96)	-1.40	23.77 (8.81)	23.49 (10.01)	.46
Role Attraction												
Attraction: Marine Role	39.33 (16.78)	44.42 (18.12)	-9.71**	36.81 (16.07)	39.91 (18.25)	-3.42**	37.76 (18.10)	43.18 (18.70)	-5.57**	37.72 (17.72)	37.40 (21.29)	.25
Attraction: Civilian Role	29.58 (15.57)	32.36 (17.41)	-6.38**	25.15 (15.66)	25.47 (17.18)	-1.57	30.40 (17.29)	32.21 (18.59)	-2.57**	30.76 (16.53)	29.53 (19.37)	1.05
Force: Marine Role	35.29 (18.06)*	42.12 (19.35)	-11.57**	32.84 (17.41)	36.72 (18.96)	-3.89**	34.27 (18.77)	40.14 (19.87)	-5.61**	33.51 (19.06)	33.81 (21.31)	-.23
Force: Civilian Role	16.29 (14.98)	20.03 (17.25)	-7.55**	14.97 (14.97)	19.12 (16.46)	-5.22**	18.92 (17.98)	21.20 (19.13)	-2.40*	18.94 (17.52)	18.42 (17.02)	.46
Leadership												
Leader consideration	43.84 (10.75)	50.71 (9.09)	-18.61**	41.87 (9.73)	48.35 (9.68)	-9.55**	41.37 (9.18)	47.91 (8.96)	-11.87**	42.16 (9.38)	50.24 (9.30)	-10.95**
Leader structure	65.03 (6.91)	63.74 (7.50)	5.12**	64.65 (6.76)	61.16 (8.63)	6.91**	63.82 (7.97)	62.94 (7.77)	1.86	64.86 (6.64)	61.45 (9.35)	5.68**
Job Content												
Skill variety	3.32 (.82)	3.22 (.81)	3.52**	3.30 (.79)	3.11 (.77)	3.96**	3.18 (.79)	3.20 (.76)	-.34	3.29 (.81)	3.18 (.76)	1.70
Task indentity	3.26 (.81)	3.27 (.76)	-.14	3.25 (.76)	3.23 (.71)	.23	3.13 (.78)	3.31 (.77)	-3.52**	3.15 (.83)	3.13 (.67)	.26
Task significance	3.79 (.84)	3.63 (.84)	5.43**	3.71 (.87)	3.52 (.84)	3.52**	3.71 (.84)	3.77 (.79)	-1.13	3.61 (.83)	3.57 (.80)	.86
Autonomy	2.58 (.92)	2.85 (.78)	-9.07**	2.60 (.89)	2.89 (.73)	-5.44**	2.59 (.83)	2.98 (.76)	-8.03**	2.57 (.90)	2.91 (.69)	-5.37**
Feedback from job	3.46 (.78)	3.50 (.71)	-1.29	3.38 (.75)	3.39 (.70)	-.12	3.38 (.69)	3.52 (.65)	-2.98**	3.28 (.75)	3.33 (.70)	-.86
Feedback from others	3.11 (.95)	3.39 (.80)	-8.85**	3.02 (.92)	3.28 (.78)	-4.57**	3.12 (.89)	3.42 (.76)	-5.88**	3.02 (.91)	3.23 (.75)	-3.48**
Dealing with others	4.00 (.72)	3.84 (.66)	6.12**	3.94 (.70)	3.73 (.72)	4.41**	3.91 (.71)	3.96 (.69)	-.98	3.91 (.76)	3.74 (.71)	3.01*
Group												
Attraction	10.56 (1.80)	10.69 (2.02)	-1.82	10.59 (1.94)	10.45 (2.27)	1.06	10.59 (1.91)	10.84 (2.04)	-2.10*	10.24 (2.03)	10.49 (2.07)	-1.55
Proficiency	6.83 (1.38)	7.18 (1.44)	-6.42**	6.81 (1.40)	7.15 (1.61)	-3.26**	7.04 (1.40)	7.35 (1.43)	-3.46**	6.59 (1.51)	7.14 (1.44)	-4.65**
Other												
Overall satisfaction	3.47 (.84)	3.63 (.73)	-6.09**	3.35 (.76)	3.50 (.80)	-2.70**	3.41 (.73)	3.52 (.75)	-2.56**	3.41 (.79)	3.42 (.73)	-.03
Internal motivation	3.97 (.69)	3.97 (.71)	-.09	3.84 (.69)	3.78 (.76)	1.26	3.92 (.67)	3.93 (.70)	-.27	3.81 (.70)	3.74 (.74)	1.40
Growth Need	3.91 (.79)	4.07 (.76)	-6.07**	3.84 (.81)	3.93 (.79)	-1.93*	3.83 (.74)	4.05 (.73)	-5.58**	3.78 (.76)	3.90 (.75)	-2.05*
Maximum N	1113			384			393			270		

*p ≤ .05 two-tailed test
**p ≤ .01 two-tailed test

Note: The present table is based on paired t-tests for the pre-training survey (Phase 1) and the post-training survey (Phase 2) and requires 3 or fewer consistency checks on both surveys (XCON1 and XCON2); therefore, a lower N is available in this table. The numbers in parentheses are standard deviations.

Source: YM-6

that the post measures used to compute the above changes were all collected during the final week of recruit training. It is quite possible that changes were positively distorted due to recruits anticipating graduation.

Pre and Out-Placement Differences for Attrites

As previously mentioned, recruits who left the Marine Corps during recruit training also completed a survey as part of their out-processing. The differences between pre and out-placement measures for attrites are shown in Table 7.

Although a number of significant changes were evident within each cohort, no changes were consistently significant across all four cohort groups. Those changes that were significant across three groups with a fourth group in the appropriate direction were: increased expectation of finding an acceptable civilian job, decreased attraction to the Marine role, decreased Marine role force, decreased leader structure and decreased dealing with others. Just as changes for graduates may be positively affected it should be noted that changes for attrites may be negatively affected due to completing the second questionnaire after the decision to leave.

DISCUSSION

As pictured in Figure 3, the cohorts included in this study were selected to highlight temporal, location, and combined temporal and quality differences. Based on the results presented in this report it appears that the most significant of these is the joint temporal and quality difference as reflected in the 1978 San Diego cohort.

This group appeared to be different from the others in a number of respects. Demographically, 1978 San Diego recruits were older, had fewer years of education, were less likely to have a high school degree, and more likely to be married.

Table 7

Comparison of Pre and Out-placement Measures for Male Nonreserve Recruit Training Attrites

	1976 Parris Island Male Non-Reserve			1977 Parris Island Male Non-Reserve			1977 San Diego Male Non-Reserve			1978 San Diego Male Non-Reserve		
	Pre-Recruit Mean	Out-Placement Mean	t	Pre-Recruit Mean	Out-Placement Mean	t	Pre-Recruit Mean	Out-Placement Mean	t	Pre-Recruit Mean	Out-Placement Mean	t
Expectations-Role Attraction												
Expectations of finding acceptable civilian job	.61 (.29)	.70 (.25)	-2.79**	.58 (.36)	.76 (.26)	-2.78*	.57 (.38)	.78 (.25)	-2.38*	.63 (.36)	.72 (.33)	-1.04
Sum positive minus negative Marine Role outcome expectancies	25.43 (9.67)	23.54 (11.33)	1.79	24.96 (9.22)	23.58 (8.97)	.54	30.49 (8.21)	25.75 (10.87)	1.85	26.25 (10.17)	24.02 (10.59)	1.49
Sum positive minus negative civilian role outcome expectancies	22.39 (9.93)	23.30 (10.45)	- .80	22.74 (7.76)	25.86 (7.87)	-1.54	24.86 (10.94)	26.63 (9.80)	- .81	25.15 (10.52)	23.54 (10.29)	1.09
Attraction: Marine Role	29.61 (18.24)	22.16 (18.09)	3.23**	28.46 (16.88)	22.54 (17.02)	1.36	41.28 (18.19)	30.24 (26.48)	2.11*	31.88 (21.67)	23.60 (20.80)	2.74**
Attraction: Civilian Role	26.11 (17.52)	23.38 (17.91)	1.08	27.36 (15.98)	26.40 (15.12)	.24	33.10 (20.45)	32.52 (25.23)	.14	31.98 (20.51)	23.58 (19.43)	2.84**
Force: Marine Role	21.92 (18.32)	9.09 (15.03)	6.44**	23.97 (19.28)	8.53 (9.43)	3.27**	32.79 (19.06)	14.98 (25.78)	3.54**	20.04 (16.26)	15.57 (21.25)	.96
Force: Civilian Role	16.92 (15.79)	18.12 (15.09)	- .71	13.71 (11.05)	20.16 (14.51)	-1.61	21.43 (22.42)	29.47 (26.00)	-1.86	20.88 (18.63)	18.48 (18.25)	.63
Leadership												
Leader consideration	41.14 (12.26)	42.93 (11.37)	-1.64	39.84 (11.08)	42.63 (11.43)	-1.20	38.84 (10.24)	44.79 (8.68)	-2.89**	38.16 (10.62)	45.44 (9.44)	-4.14**
Leader structure	62.69 (7.34)	57.70 (9.89)	5.41**	65.39 (6.08)	57.17 (11.02)	3.82**	63.00 (8.92)	60.42 (13.62)	.81	63.13 (9.82)	55.04 (14.13)	2.99**
Job Content												
Skill variety	3.07 (.79)	2.87 (.70)	2.11*	3.35 (1.01)	3.05 (.74)	1.14	3.52 (.60)	2.82 (.81)	2.96**	3.26 (.63)	3.03 (.74)	1.27
Task identity	3.12 (.77)	2.97 (.74)	1.51	3.37 (.70)	3.37 (.70)	- .01	2.88 (.72)	3.02 (.82)	- .57	3.07 (.77)	3.28 (.56)	-1.72
Task significance	3.46 (.82)	3.12 (.73)	3.43**	3.60 (1.00)	3.12 (.80)	2.36*	3.47 (.74)	3.26 (.70)	1.06	3.55 (.88)	3.54 (.83)	.01
Autonomy	2.41 (.94)	2.78 (.77)	-3.86**	2.46 (.73)	2.97 (.74)	-2.20*	2.47 (.83)	2.65 (.82)	.70	2.40 (.87)	2.95 (.92)	-2.60*
Feedback from job	3.11 (.86)	3.09 (.63)	.20	3.25 (.74)	3.47 (.64)	-1.15	3.30 (.66)	2.87 (.79)	2.28*	3.25 (.77)	3.36 (.59)	- .57
Feedback from others	2.98 (.86)	2.99 (.80)	- .09	3.10 (1.09)	3.17 (.70)	- .28	3.02 (.64)	2.85 (.90)	.78	3.27 (.94)	3.32 (.66)	- .21
Dealing with others	3.84 (.72)	3.38 (.62)	5.60**	3.98 (.58)	3.63 (.68)	2.07*	3.73 (.73)	3.55 (.82)	.92	3.85 (.66)	3.42 (.63)	3.31**
Group												
Attraction	9.80 (1.97)	9.52 (2.37)	1.03	10.58 (1.92)	9.11 (2.26)	2.80*	10.15 (1.93)	9.85 (2.78)	.58	10.10 (2.32)	10.24 (2.52)	- .22
Proficiency	6.48 (1.45)	6.37 (1.61)	.57	6.70 (1.17)	6.30 (1.49)	1.02	7.10 (1.17)	6.45 (1.79)	1.29	6.43 (1.83)	6.70 (1.62)	- .84
Other												
Overall satisfaction	2.87 (.86)	2.88 (.75)	- .14	3.24 (1.00)	2.80 (.91)	1.54	3.18 (.93)	3.25 (1.08)	- .22	2.57 (.79)	3.03 (.56)	-3.33**
Internal motivation	3.63 (.70)	3.28 (.64)	3.98**	3.68 (.68)	3.17 (.87)	2.68*	3.59 (.87)	3.41 (1.07)	.75	3.52 (.77)	3.39 (.56)	.93
Growth need	3.59 (.84)	3.42 (.81)	1.61	3.53 (.71)	3.55 (.64)	- .11	3.68 (.76)	3.64 (.82)	.19	3.48 (.92)	3.25 (1.05)	1.17
Maximum N	110			21			22			30		

*p ≤ .05
**p ≤ .01

Note: The present table is based on paired t-tests for the pre-recruit survey and the attrite survey. Each observation must have 3 or fewer consistency checks on both surveys, (XCONI and XCONA), therefore, a lower N is available in this table. The numbers in parentheses are standard deviations.

Source: YM-7

Therefore, these recruits were more likely to have dropped out of school and to have spent time in the civilian labor market. Their motivation to enlist in the Marine Corps might have been due to inability to find acceptable permanent employment, or failure at a particular job.

In terms of attrition, a significantly greater percentage of recruits were discharged from the 1978 San Diego group than from a sample of recruits surveyed at the same location six months earlier. This result is not surprising since demographic variables, particularly education, have consistently been shown to be predictors of military attrition (Hand, et al., 1977) and are currently used to screen applicants for military service.

In addition to demographic and attrition differences, the 1978 San Diego cohort exhibited fewer significant changes during recruit training (see Table 6). In terms of absolute numbers, significant pre-post changes were noted in eight survey measures for this group compared to 16 changes for both of the 1977 cohorts and 20 changes for the 1976 cohort. Of greater interest, however, is the pattern of consistency among these changes, that is, the extent to which changes in one group are different from changes in other groups. In terms of consistency of change, the 1978 San Diego cohort appears to be the most unusual of the four. Six measures exhibited consistently significant pre-post differences for three of the cohorts but showed no significant differences for the 1978 San Diego cohort. These variables were: chances of completing enlistment, sum of the positive minus negative Marine role outcome expectances, Marine role attraction, Marine role force, civilian role force, and overall satisfaction. In effect, the recruit training experience caused recruits in three of the cohorts to: see greater chances of completing their enlistment, view the Marine role as more attractive, view the civilian role as more attractive, and experience greater satisfaction than expected. These changes, however, were

not significant and, in some cases, were reversed for the 1978 San Diego cohort. Therfore, this group did not experience many of the changes which occurred in the other groups as a result of completing recruit training. In addition, graduates in this group had lower intentions to complete their enlistment than when they began recruit training.

It is difficult to speculate about the long term effects of the changes described above. On the one hand, considering the importance of these variables in predicting attrition during recruit training, it is reasonable to believe that the 1978 San Diego cohort will experience higher rates of attrition after recruit training. If, however, the lack of dramatic change during recruit training reflects accurate expectations regarding everyday life in the Marine Corps, one might suspect that this group could experience less subsequent attrition than the other groups. The changes that occurred during and after recruit training and their relationship to attrition for the 1976 Parris Island cohort will be the topic of a forthcoming technical report.

The final way in which the 1978 San Diego cohort differed from the other cohorts was in the prediction of attrition from measures taken prior to the start of training. As Table 3 shows, separate regression equations were estimated to predict attrition for the combined 1976 and 1977 cohorts and for the 1978 cohort.

For the prediction of attrition from pre-training measures, the most salient predictors were demographic/individual differences variables, expected satisfaction, and intentions. Measures that appeared to have little incremental utility for prediction purposes were expected job content, leadership and group variables. The Marine minus civilian role force, which distinguished graduates from attrites in three of four cohorts, was not significant in the prediction equations for attrition. This was due primarily to a high intercorrelation with expected satisfaction.

The most significant attrition predictors for the pooled 1976 and 1977 cohorts were demographic/individual variables, while expected satisfaction was most significant for the 1978 cohort. In effect, when compared with individuals in the pooled cohorts, 1978 San Diego recruits were more likely to leave recruit training when they anticipated less satisfaction. This propensity to withdraw in the face of anticipated negative consequences may be characteristic of poorer quality recruits and could explain why this group was less likely to have completed high school.

It is important to note that intention to complete enlistment was a strong predictor of attrition for recruits in both groups. This result is consistent with previous findings in attitude research as well as research or employee turnover (see Mobley, Griffeth, et al., 1979). In effect, prior to the start of training, new recruits with lower intentions to complete their enlistments had a lower probability of successfully completing recruit training.

The separate equations shown in Table 3 exhibited substantial differences in explained variance: 5 percent for the combined 1976 and 1977 cohorts and 21 percent for the 1978 cohort. Perhaps the most obvious reason for this difference is variation in the dependent and independent variables. The values for percent attrition (9 percent for the combined cohorts vs 14 percent for the 1978 cohort) allows a greater range for the 1978 cohort. Also, for all significant independent variables, greater variance was present for the 1978 cohort. Finally, expected satisfaction, which was most significant in the prediction of attrition for the 1978 cohort, is capable of taking on a wider range of values than the relatively homogeneous demographic variables which were most significant in predicting attrition for the combined 1976 and 1977 cohorts.

Although results from the 1976 Parris Island cohort were not consistently significant across all cohorts, the findings of this study generally support those of an earlier study of recruit training attrition (Mobley, Hand, Meglino, & Baker, 1978). Significant pre-recruit training differences distinguished graduates from attrites and generally similar results were obtained for other analyses conducted.

Perhaps the most interesting conclusion of this study is the presence of two significantly different prediction equation for samples which differed in overall quality as measured by age and level of education. Since different variables were responsible for predicting attrition in these distinct groups, experimental studies which alter entrance and discharge criteria may yield useful strategies for maintaining staffing levels in the future. Such studies should evaluate the long term effects of such strategies.

The observation that graduates and attrites differed on measures taken prior to recruit training continues to have implications for recruiting. Also, these results raise the possibility of differential treatment, counseling, and other interventions directed at recruits representing high attrition risks.

Finally, self reported reasons for attrition suggest a number of possible interventions aimed at all recruits. Providing individuals with ways of coping with the pressure of training and methods for dealing with homesickness and the lack of personal freedom could prove helpful in reducing voluntary attrition.

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